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FX: The Early Days / Surveillance and Target Acquisition Network (STAN)

(http://www.nps.edu) FIELD EXPERIMENTATION
NAVAL POSTGRADUATE SCHOOL

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FX: The Early Days

The Naval Postgraduate School (NPS) Field Experimentation (FX) Program was initiated in 2002 by the NPS Dean of Research, Distinguished Professor Dr. Dave Netzer (http://faculty.nps.edu/vitae/cgi-bin/vita.cgi?p=display_vita&id=1023567648) to: (1) provide an opportunity for NPS faculty and students to demonstrate and evaluate new technologies related to their research in an operational field environment, and (2) provide the operational community the opportunity to utilize and experiment with these technologies. In coordination with the Associate Provost for Academic Affairs, Ms. Julie Filizetti, a proposal for field research was submitted to US Representative Samuel Farr's (California 20th District) office. Dubbed CDTEMS (Center for Defense Technology and Education for the Military Services), this funding accounted for 22% ($6.34M) of NPS FX support from fiscal years 2002 to 2010.

The first experiments in FY02 focused on the use of unmanned aerial vehicles (UAVs) to improve Naval Special Warfare (NSW) forces downed pilot rescue capabilities. These field experiments were led by Defense Analysis (DA) Master's student LT Joseph (Josh) C. Butner, USN, and documented in his thesis titled *Experimental Analysis of Integration of Tactical Unmanned Aerial Vehicles and Naval Special Warfare Operations Forces* (http://www.dtic.mil/dtic/tr/fulltext/u2/a409922.pdf). Josh's thesis advisers were Dr. Dave Netzer and Dr. Phil Depoy, Director of the NPS Wayne E. Meyer Institute of Systems Engineering. This initial thesis focused on two parts: First, it created a diverse network of academic researchers, military students, industry, and government participants capable of evaluating emerging technologies in an operational yet analytical environment that could be repeated by follow-on students and researchers. Second, it focused on the analysis of the integration of small UAS during a specific NSW downed pilot mission scenario.

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Surveillance and Target Acquisition Network (STAN)

In January 2003, NPS FX was combined with another master's thesis to create a cooperative field experimentation effort with U. S. Special Operations Command (USSOCOM) Science & Technology (S&T) and J9 Knowledge & Futures (SOKF) divisions. The experimentation event was named STAN (Surveillance and Target Acquisition Network) in memory of CWO2 Stanley Harriman, USA, who was killed by USAF AC-130 friendly fire in Afghanistan on 2 March 2002. STAN was conceived by Defense Analysis master's students CWO2 Christopher E. Manuel, USA, Maj Haspard R. Murphy, Jr., USAF, and Maj Kenneth A. Paxton, USAF, and was documented in their 2004 restricted distribution thesis titled *The Surveillance and Target Acquisition Network (STAN)*.

K4 access point and bridge point

K2 Aircraft Tracker with access and bridge

(/documents/104301897/104310401/stan.jpg/06dfc4b1-f158-439f-9dea-af0a345af5a2?t=1394137673000)

The thesis focused on the "integration of a tetherless transmit/receive link[s] between soldiers, tactical vehicles, ground sensors, manned and unmanned platforms to push/pull secure voice, data, and video to USSOCOM components" (p. V). Their thesis began as a joint interdisciplinary project between the NPS DA Department, chaired by Dr. Gordon McCormick, Dean of Research Dr. David Netzer, Dr. Alex Bordetsky, the Information Sciences Department, and included several professors from multiple academic disciplines. STAN's initial experimental efforts focused on developing both the first Remotely Operated Video Enhanced Receiver (ROVER) prototype as well as the associated Surveillance and Target Acquisition Network (STAN) necessary to link all relevant assets in the tactical environment. To accomplish this task, a multi-disciplinary team of NPS research faculty and over thirty thesis students were formed to generate ideas and solutions. The NPS team focused on the tactical network development and monitoring for each experiment. Military units and a contractor team were integrated with NPS to assist in requirements determination and to produce prototypes for experimentation. Seven STAN experiments were conducted from July 2003 to August 2004 at locations that included: the Center for Independently Remotely Piloted Airship Studies (CIRPAS (http://www.cirpas.org/)) at McMillan Airfield; Camp Roberts CA ANG base; the CIRPAS facility at Marina Municipal Airport (KOAR); the Military Operations on Urban Terrain (MOUT) facility at Fort Ord, CA; Monterey Bay; NPS; and Reno, NV.

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